


Groundwater Education Programs

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Tammy Wittmer
Land Conservation Planner, CDD

St. Croix County Groundwater 101

- Groundwater is the sole source of residential water supply
- 2010 county population was 84,345
 - 11 municipalities provide drinking water to around 41,513 residents
 - The remaining, approximately 42,832 county residents get their drinking water from private wells



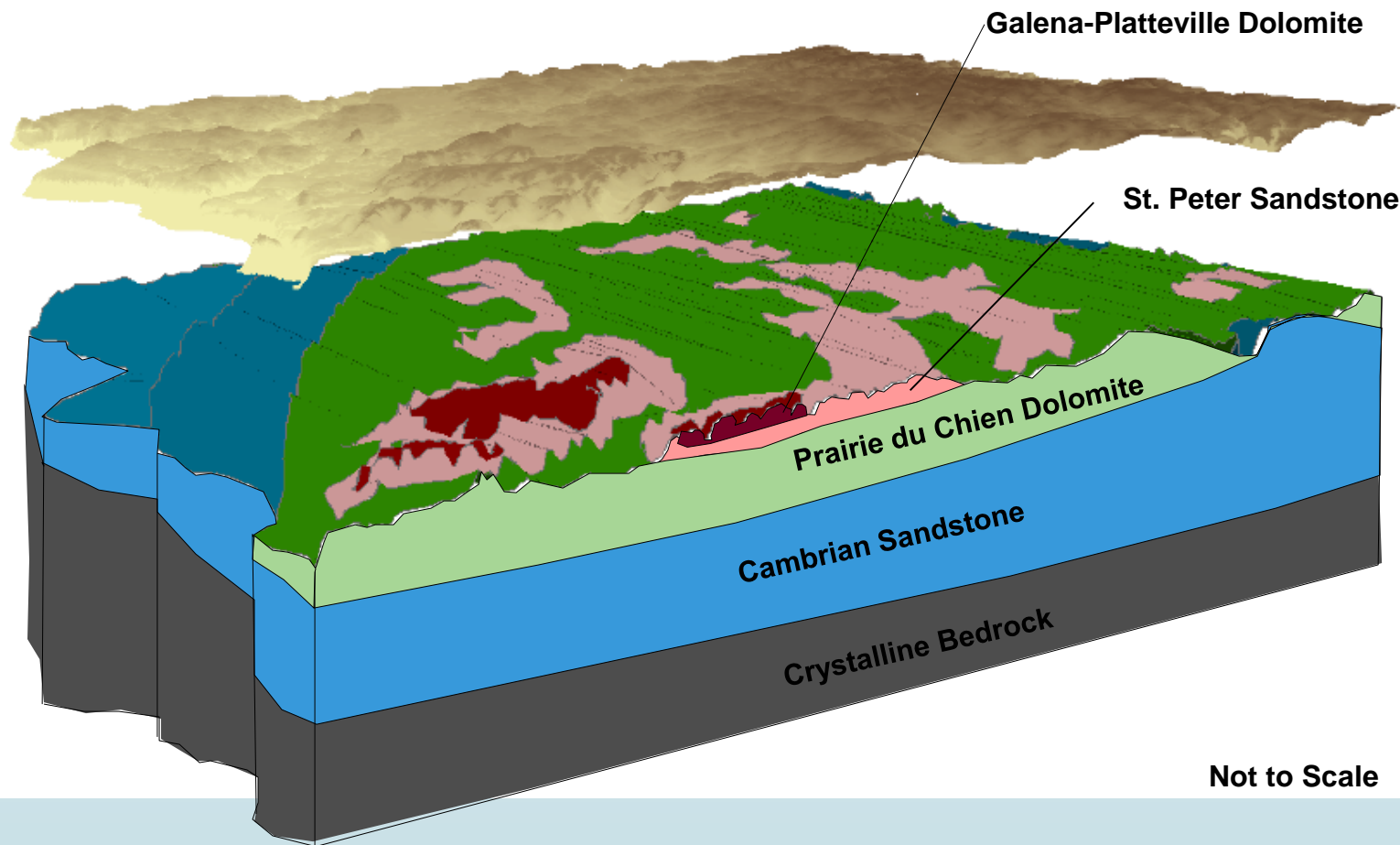
St. Croix County Groundwater 101

Public Water Supplies (currently 161 public wells in SCC)

- 40 municipal wells, average well depth of 300 feet, into the **Cambrian sandstone aquifer**
- Regularly tested and regulated by drinking water standards
- Common water treatment includes: sediment filtration, disinfection, softening, iron removal and fluoridation.

Private Wells (an estimate 16,000 private wells in SCC)

- Average well depth 75-200 feet
 - Estimated 9,859 (well construction logs since 1988)
- The **Prairie du Chien dolomite** is the main aquifer used for private residential water supply
- Not required to be regularly tested
- Not required to take corrective action
- Well owners must ensure their water is safe to drink



Not to Scale

History of private well water testing

- St. Croix County Fair
- Introduction to Groundwater in St. Croix County
 - UW-Extension, LWCD, Public Health, CWSE-UWSP
 - 2,100 wells voluntarily tested (1999-2005)
- Town Drinking Water Testing Programs (2007-current)
 - 2 Programs / Year
 - Goal, every town – every 5 years
- Brown-water events
- Individual basis (test kits available in offices)
- Septic system maintenance notice
 - Direct mailing 5,000 spring and 5,000 fall

An Introduction to Groundwater in St. Croix County



UW
Extension

Center for
Watershed Science
and Education

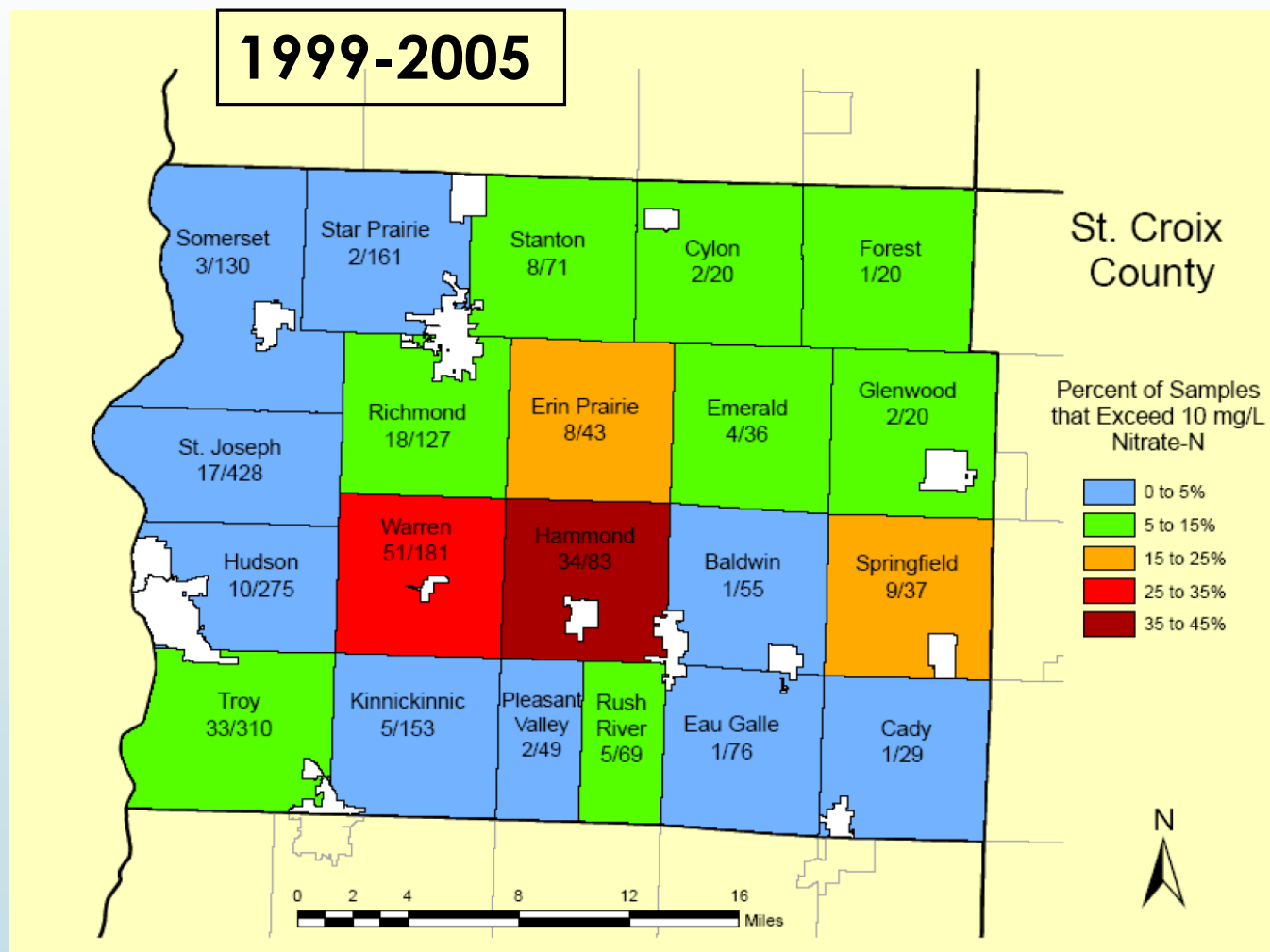
Community Drinking Water Programs

- County Partnerships
 - Community Development Department
 - Public Health Department
 - Local Towns
- Objectives
 - Offer homeowners a convenient opportunity to test their private well water with a state certified laboratory
 - Educate the community about groundwater
 - Where does your drinking water come from
 - Understanding the connection between water quality, geology and land-use
 - Help participants understand their drinking water quality results and options for improving water quality
 - Develop a long-term database reflecting local groundwater quality

Water Testing Options

1. Homeowners Package (\$49)
 1. Coliform Bacteria
 2. Nitrate
 3. Chloride
 4. Alkalinity
 5. Conductivity
 6. Hardness
 7. pH
2. Metals (\$49)
 1. Arsenic, lead, copper, zinc, iron, manganese, sodium, calcium, magnesium, potassium, sulfate
3. Diaminochlorotrizine* (DACT) Screen (\$27)
 1. Quick method to measure the amount of the most common corn herbicides (breakdown of atrazine and related herbicides)

Water Quality Results



Data Collection and Analysis

Nitrate in Groundwater St. Croix County

This map depicts all water sample results in St. Croix County, both public and private, from the water testing labs at UW-Stevens Point, Colfax, and Oshkosh from 1986-2010. Drinking water tests in 2001 and 2004 were conducted County-wide on a voluntary basis by the St. Croix County Land Conservation Department and UW-Extension. The Towns of St. Joseph, Richmond and Erin Prairie have also conducted another round of testing in 2007, along with Hudson, Troy, Springfield and Glenwood in 2010. Currently, Warren township is conducting its own drinking water program where the water supply of every home will be tested. This map includes the first round of testing in the township from the Summer of 2007.

*Note: Nitrate levels over 2 ppm indicate human impact on groundwater. Levels over 10 ppm exceed the DNR drinking

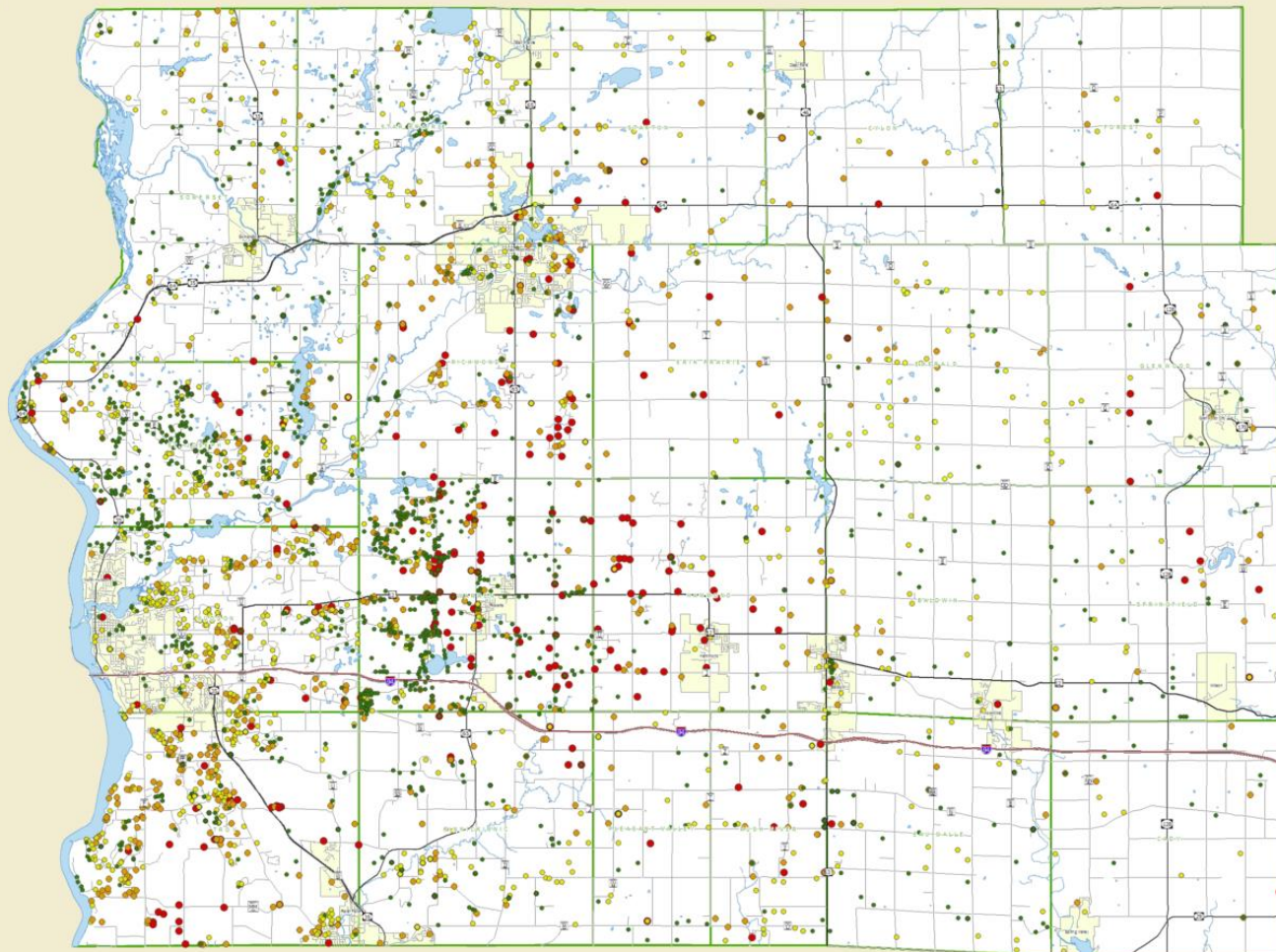


NO₃

- Less than 2 ppm
- 2-4.9 ppm
- 5-9.9 ppm
- Over 10 ppm

- Rivers & Streams
- Water Bodies
- Municipality
- Township Boundary
- County Boundary

0 1 2 3 Miles



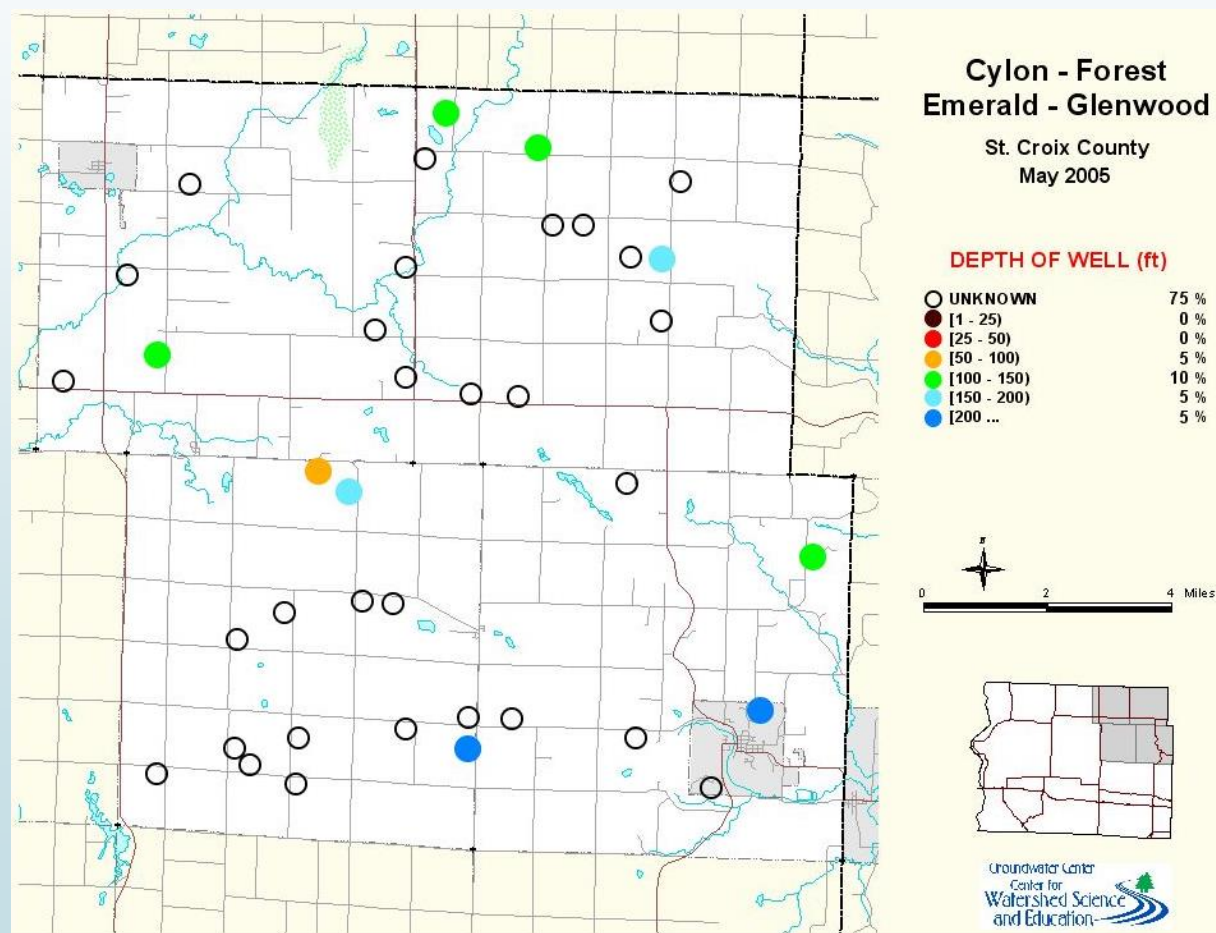
Data Collection and Analysis

Nearly 3200 households have participated in the County's Drinking Water Testing Program (1999-2010)

- 25% met the health based drinking water limit of less than 2 mg/l for Nitrates
- 65% have elevated nitrate levels (2-10 mg/l)
- 10% exceed the safe drinking water standard of 10 mg/l
- An estimated 49% of those private wells tested contained a detectable level of an herbicide or herbicide metabolite.
- 10,270 acres of land in St. Croix County are in atrazine prohibition areas.

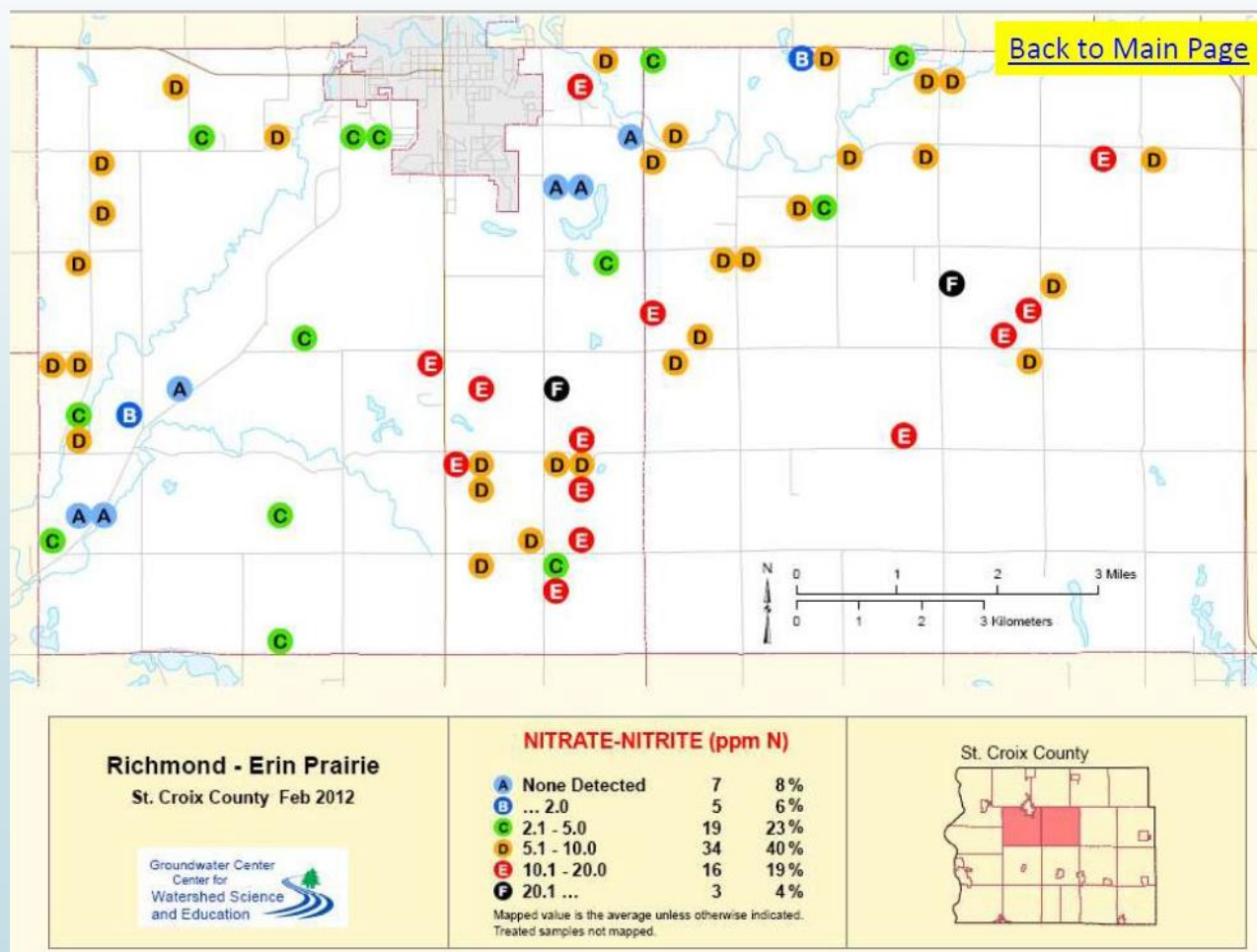
Understanding the data

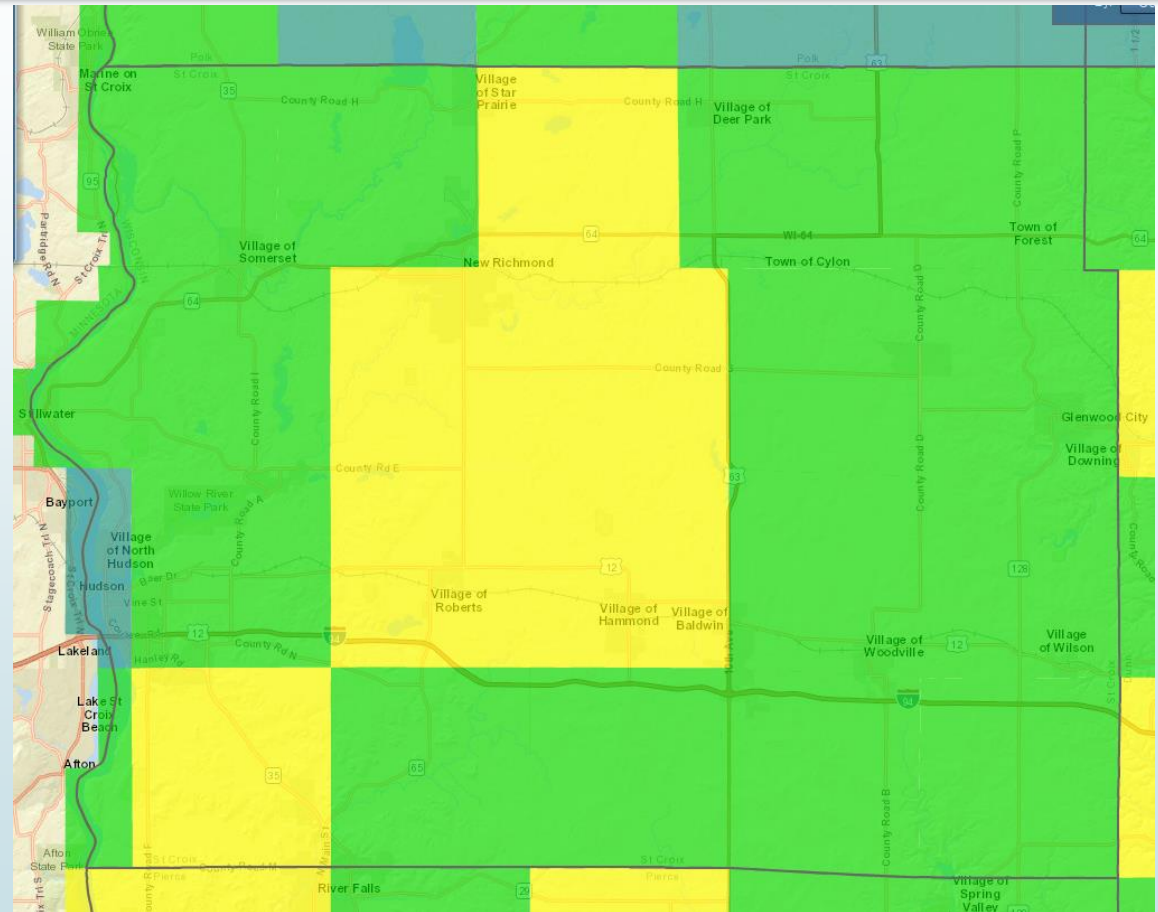
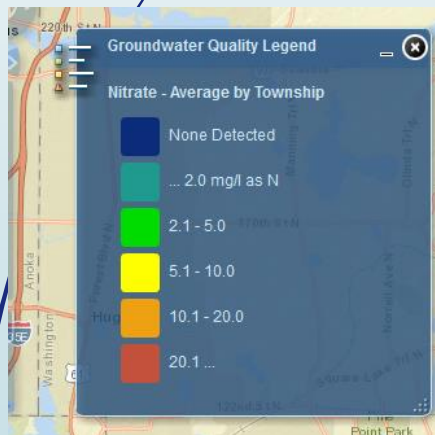
- 39 total participants in 2005
- 75% wells with unknown data



Understanding the Data

- Future Land Use Decisions
- Work directly with areas with high concentrations

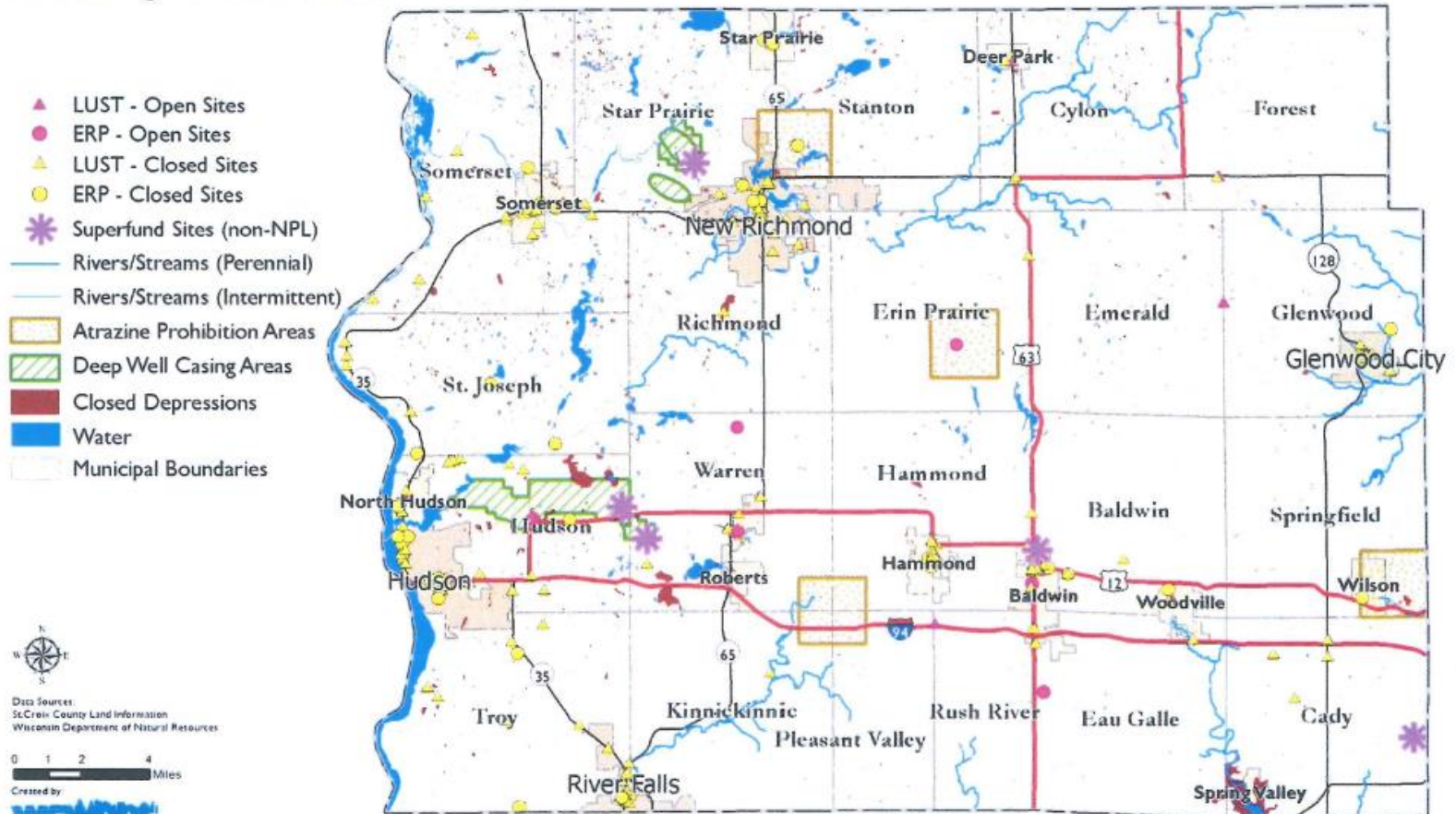




https://gissrv2.uwsp.edu/cnr/gwc/pw_web/

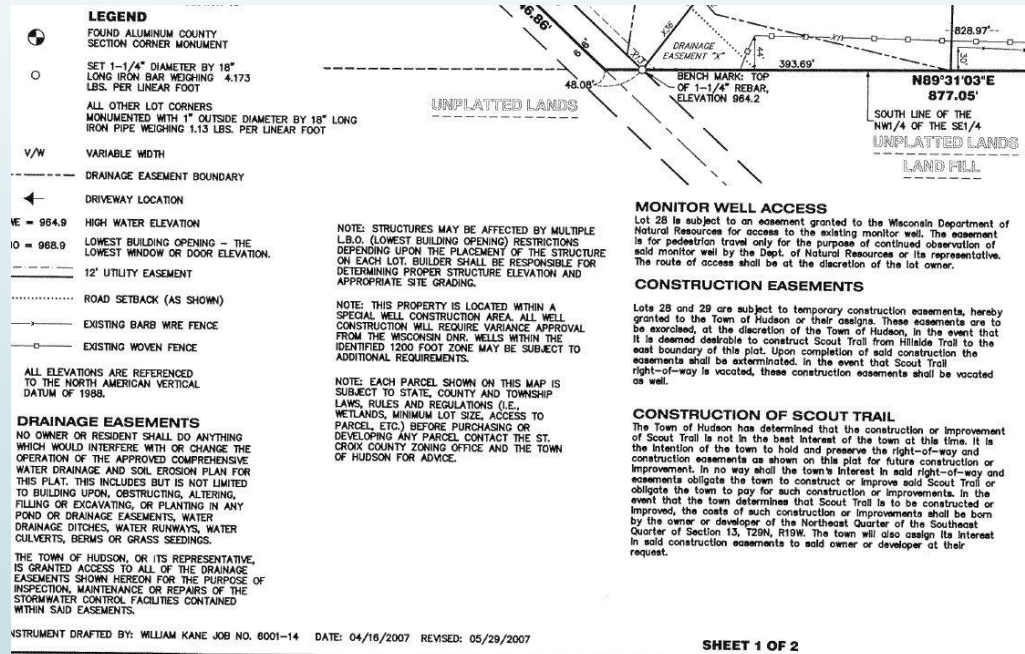
Source: Department of Natural Resources

Existing Groundwater Contamination Concerns



Land Use Planning

- NOTE: This property is located within a special well construction area. All well construction will require variance approval from the Wisconsin DNR. Wells within the identified 1200 foot zone may be subject to additional requirements



Safe Medication Disposal Program

► <http://www.co.saint-croix.wi.us/safemedsdrop>



St. Croix County Medication Disposal Program

Safe and secure disposal option for
old or unneeded prescription drugs
and over-the-counter medications.



♦ Free to all residents ♦ Anonymous

1. We accept prescription drugs, over-the-counter medications, vitamins, liquids, inhalers, sprays and pet medications.
2. Remove all pills from their original containers and combine in a zip-top plastic bag. Recycle containers based on hauler guidelines.
3. Liquids, creams, gels, etc. can remain in their original container; remove name or label and place in zip-top plastic bag.
4. We *cannot* accept sharps, oxygen tanks, nebulizers, radioactive cancer medications, or mercury thermometers.

Medication Drop-Off Locations available throughout St. Croix County
(locations and hours below)

For further information visit: <http://sccwi.us/safemedsdrop> or call 715.381.4320



M-F 8-4



M-F 8-4:30



M-F 8-4:30



M-F 7:30-4:30



M-F 8-4:30



M-F 8-4:30



M-F 8-3



M-F 8:30-4:30



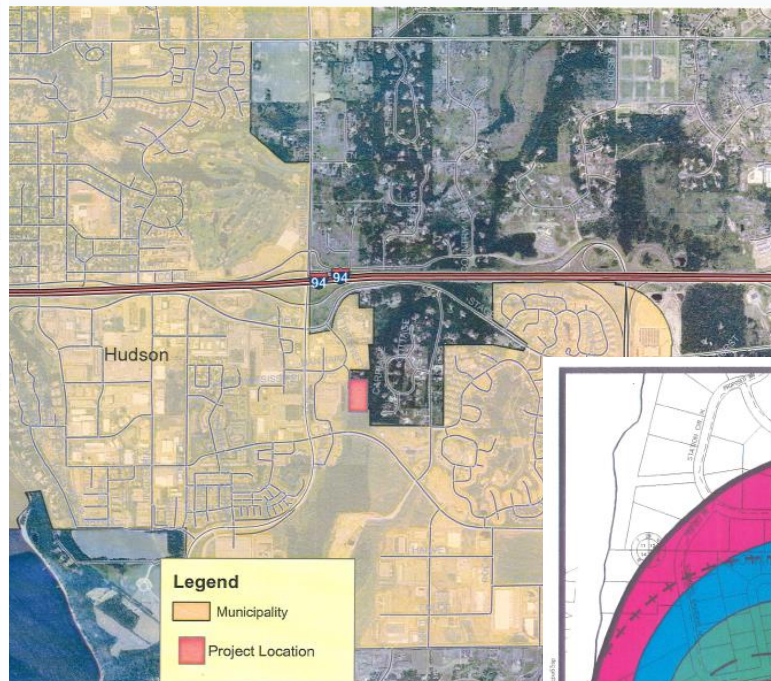
M-F 8-4



Open 24/7

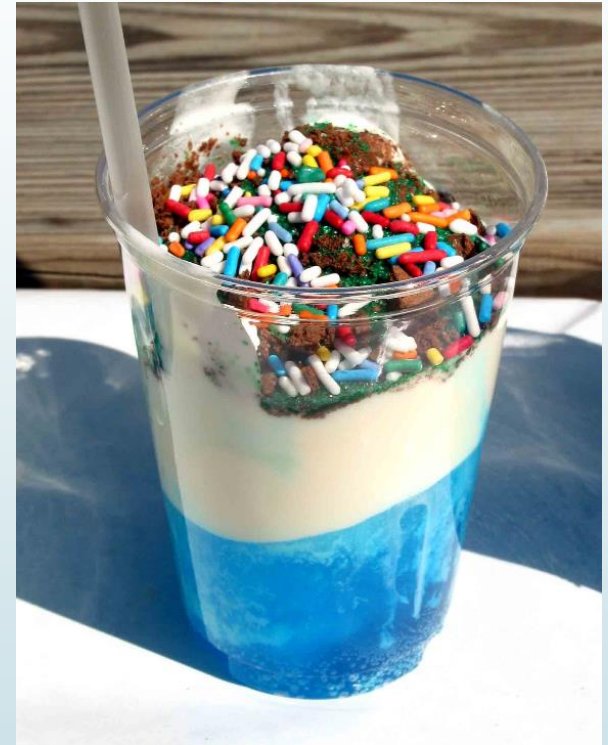
St. Croix County is taking action to...

*Reduce substance abuse *Protect surface & groundwater *Prevent childhood poisonings

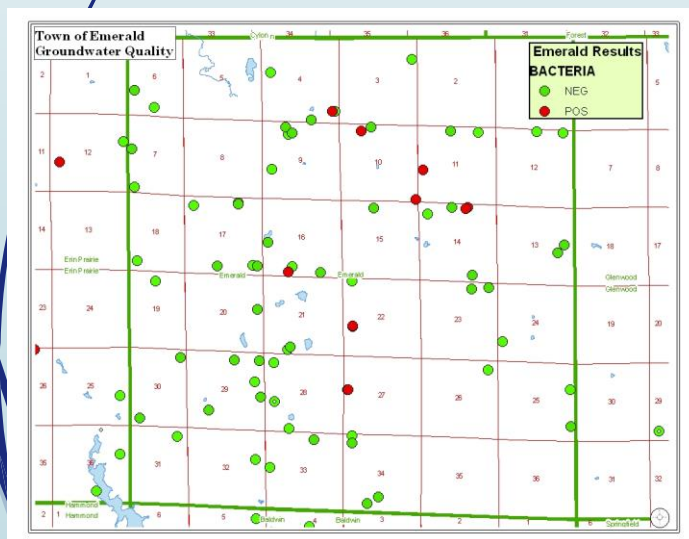
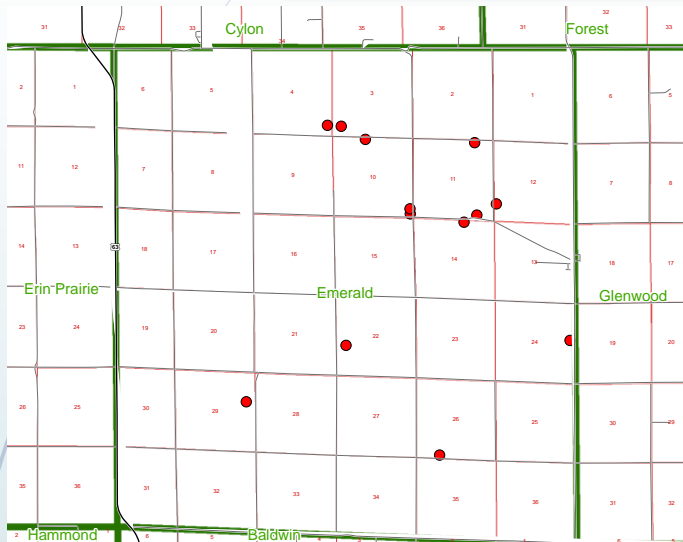


Community Groundwater Education

- Edible Aquifers (Earth Day)
- Groundwater Flow Model



Brown Water Events



Mark Your Calendar for October 23rd

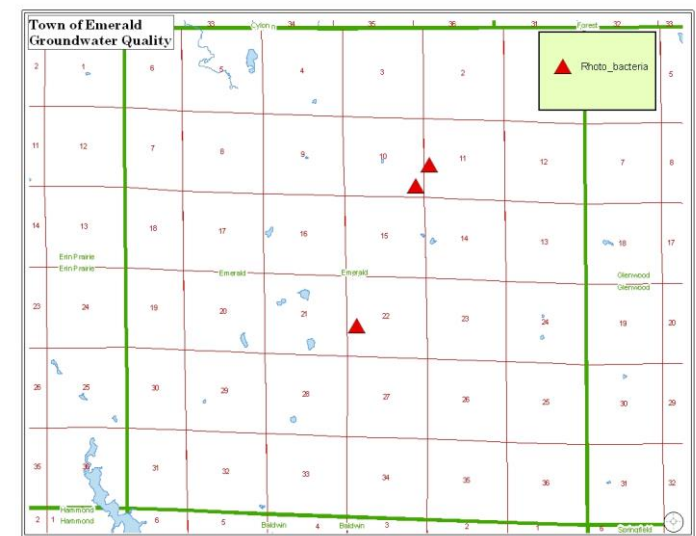
A Special Town meeting will be held at the Emerald Town Hall
Thursday October 23rd from 6:30—8:00 p.m.

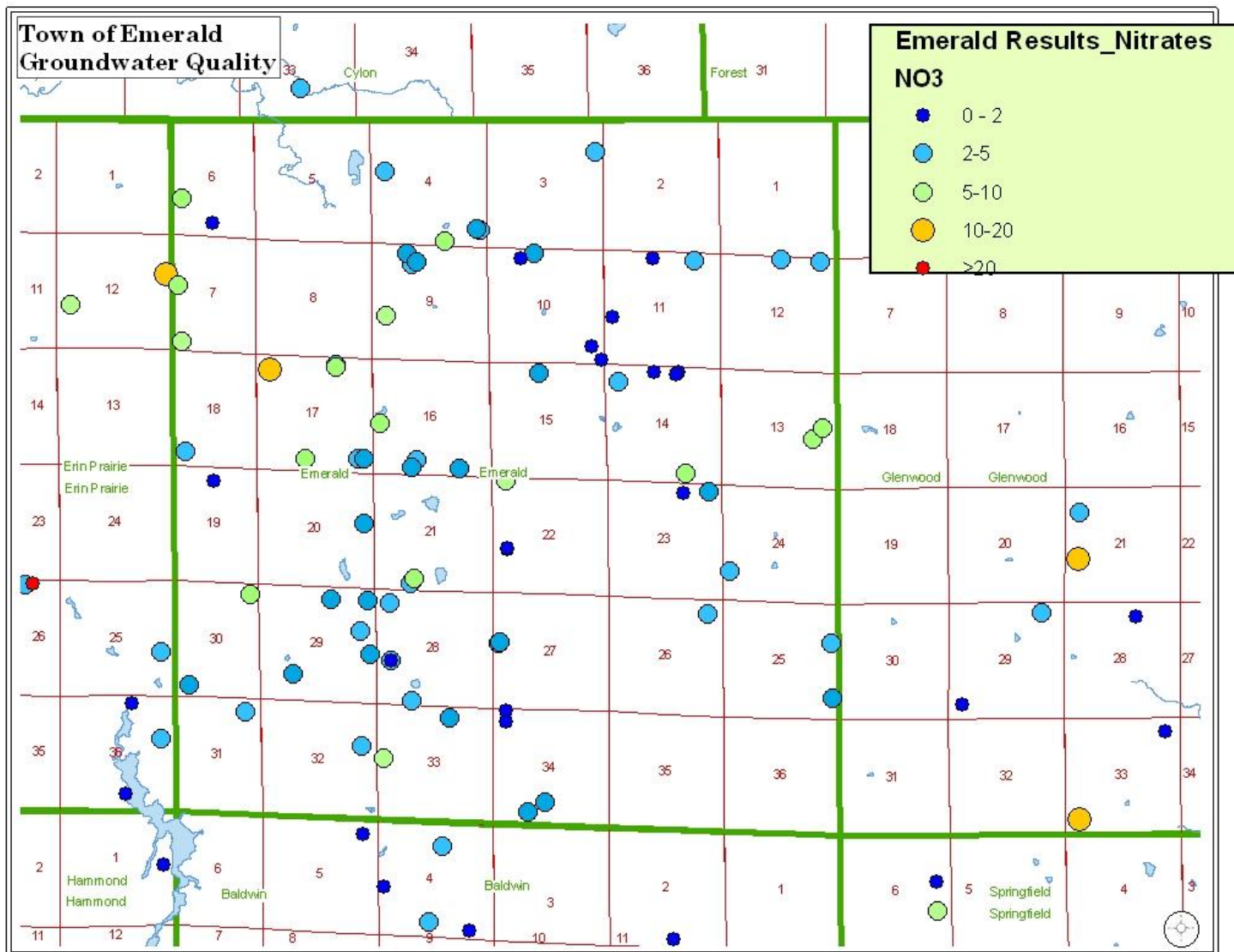
Are you an Emerald resident and want to learn more about your drinking water? The St. Croix County Land & Water Conservation Department, WI-DNR and UW-Hydrogeology Professor will be providing an overview on local geology, hydrology and land use and how everything is connected to our ground water and our drinking water supply.



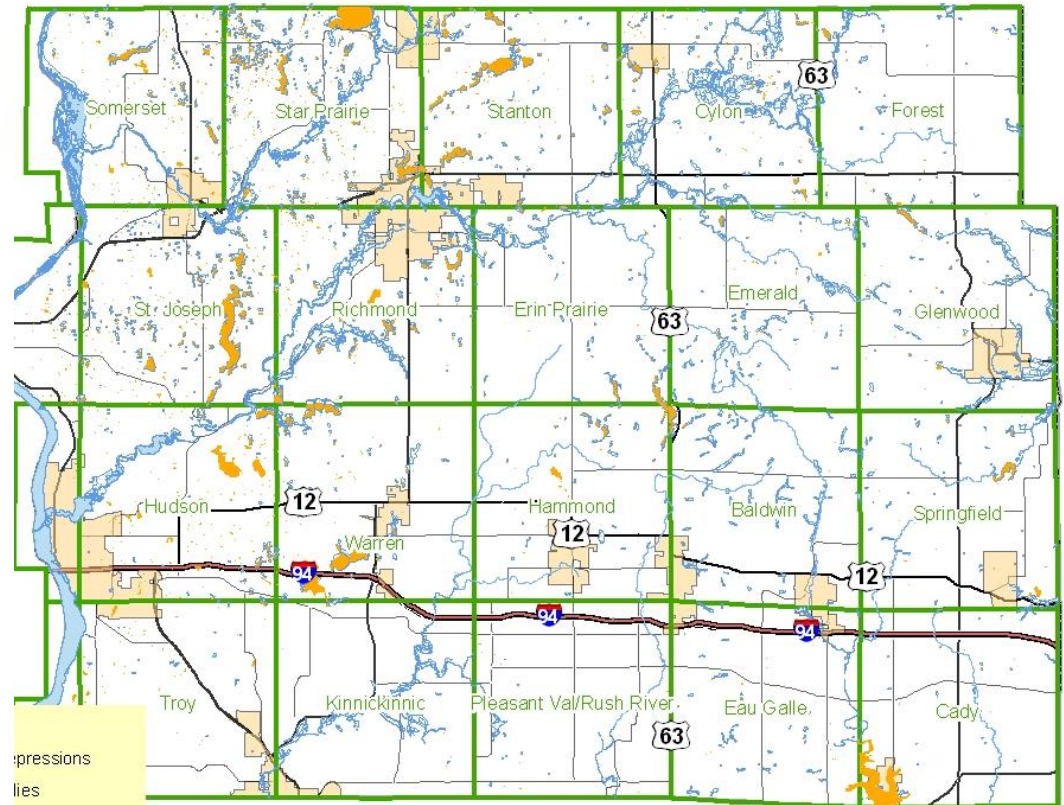
Unusual odors, strange taste, discolored water, red-brown stains, bathtub rings, extra sediment?

- Do you have signs of water quality problems?
- Do you currently have a water treatment systemand what are you treating?
- How deep is your well?
- Have you ever tested your drinking water ?
- What problems are other residents having with their water?
- Is your water safe to drink?



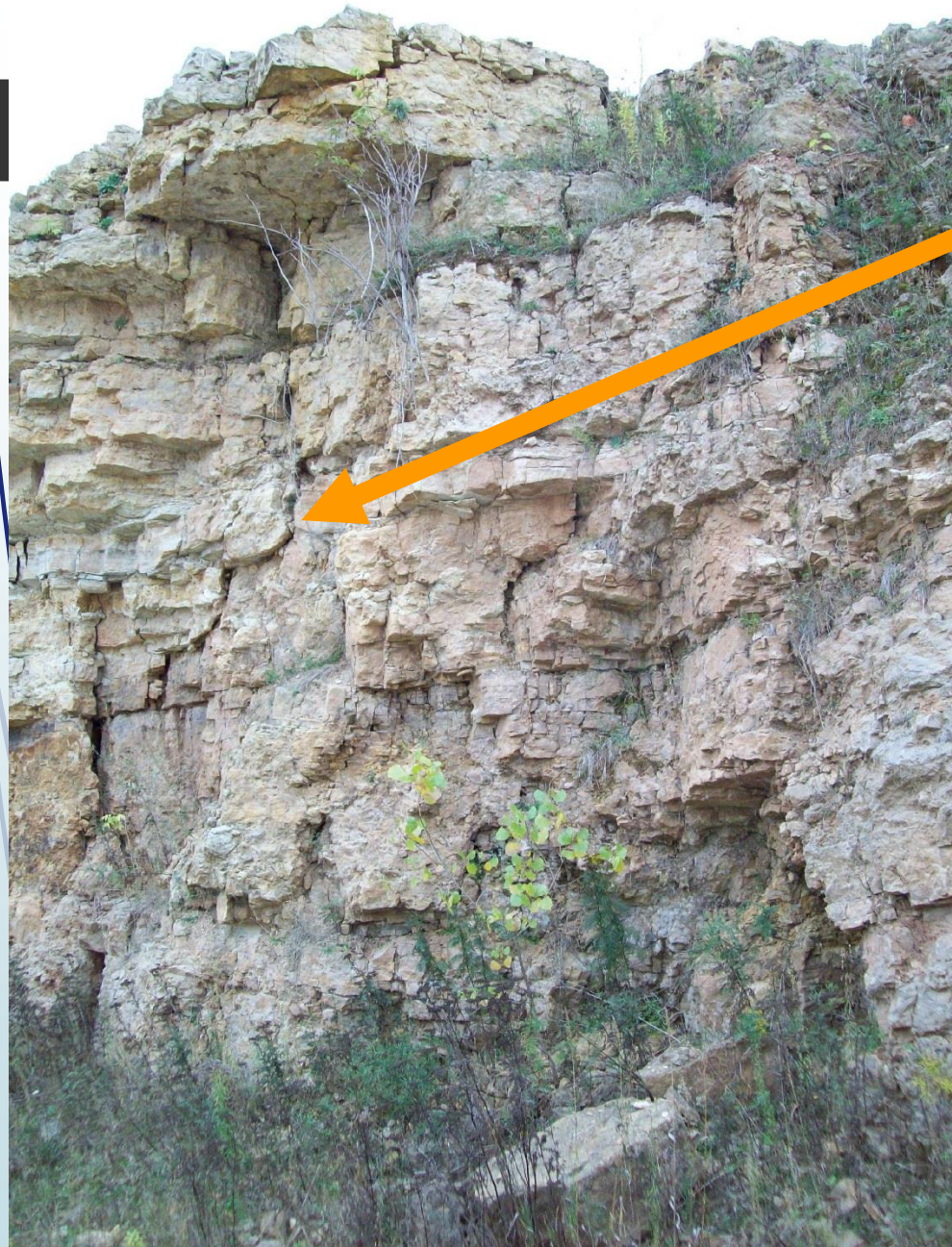


Karst Mapping

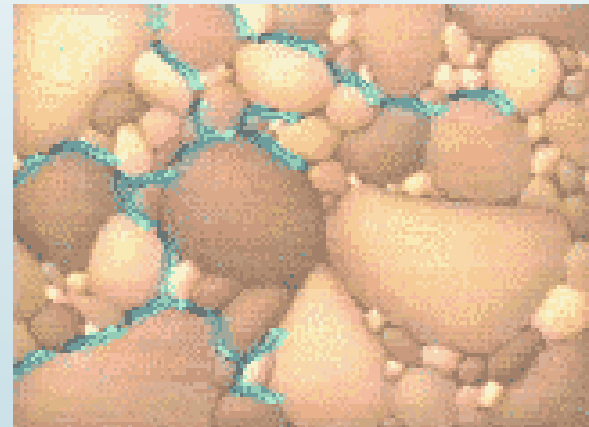


pressions
lies
streams
intermittent_streams





Fracture?



Emerald Quarry



Sinkhole Treatment:
2006



